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Earthquake Vulnerability Reduction in Urban Areas of Developing Countries

Building collapse during the Gujarat Earthquake, Photo: UNDP website

The absence of any reliable mechanism to predict earthquakes makes them the most disastrous of all natural calamities. Earthquakes affected 19 million people in 2001, more than any other year of the decade and cost the world US$238 million in damages alone. Afghanistan, China, Iran, Indonesia, India, Japan, Nepal, Pakistan, Papua New Guinea, Philippines and Taiwan all lie within seismically active areas. Seismic risks to people and economic losses have been increasing due to the rapid pace of urbanisation and increasingly dense city populations. Recent earthquakes in Iran, India, Taiwan and Turkey have yet again shown us how vulnerable urban areas are to the effects of earthquakes.

There are two basic structural measures for reducing vulnerability: enforcing seismic building codes and imposing land use restrictions to limit settlements in hazard prone areas. With the steady pace of economic growth in Asia and the influx of rural migrants and investment funds to cities, urban centres have seen an increase in construction that often does not comply with local building codes. The extraordinary number of existing noncompliant buildings poses a serious challenge to earthquake mitigation. Earthquake events seem to have only a short-term effect on people's motivation to enforce building codes in new construction and a host of problems diverts the attention of municipal bodies, local planners and engineers from enforcing seismic code regulations. In addition to the technical and legal aspects, there are socio-economic and political factors to consider.

Theme . . .

Disasters are unresolved problems of development. These problems stem from socio-economic, governance, demographic and physical environment issues that have to be understood and integrated into the process of reducing vulnerability to earthquakes. Municipal bodies often lack the resources or technical capacity to implement building codes or scrutinize the technical aspects of building plans. The problem is acute in smaller cities and towns, where even if the people want to incorporate seismic features into their houses, there is little technical assistance available. The urban poor, who often live in the most hazard prone areas, find it financially impossible to relocate or improve their houses. Although recent earthquakes have put some pressure on governing bodies for more effective enforcement or introduction of seismic codes, measures are generally implemented only on new structures. Many municipalities lack appropriate land use restrictions or do not adhere to their own planning laws or master plans. The result is the expansion of towns and cities into hazard prone areas where more unsafe buildings are constructed.

Local governments have a pivotal role in reducing vulnerability to earthquakes, but national committees need to be set up to monitor enforcement of building codes, periodically appraise seismic risks, and recommend various mitigation measures for critical infrastructure, houses, industries, dams, nuclear plants and essential facilities such as schools and hospitals. Retrofitting strategies based on affordable engineering solutions are needed along with new initiatives for promoting insurance, both in the government and in the private sector. It would clearly be in the interests of national governments to create a mechanism like disaster insurance funded by contributions from annual budgets.

The lack of adequate prevention measures has been the main cause of casualties and economic losses in past earthquakes. And yet, there remains a fallacy that preparedness costs more than relief. There is also more political mileage to be gained from relief measures and this too has impeded attempts to prioritize preparedness measures.

The last few decades have seen an encouraging paradigm shift from relief to response to risk management that is influencing the way disaster management programs are planned and financed. However, these efforts claim a fraction of the resources allocated to humanitarian assistance, relief and post-disaster reconstruction. Below are a number of interventions that could be adopted in earthquake prone towns, cities, districts and provinces.

Raise public awareness and sensitize decision-makers: Most local governments have a negative image regarding delivery of basic services. As a result, most investments (public and private) are skewed towards upgrading existing basic

infrastructure. The situation is further exacerbated by the increasing competition between cities to attract foreign direct investment. There is an urgent need to sensitize decision-makers and advocate for the importance of earthquake mitigation in their existing political and development agenda.

Recognize that earthquakes are not just 'set backs' to development, but result in part from the path that development is taking: Both technical and political groups need training. In urban areas in developing countries, a few individuals make most of the political decisions. Many development problems have been successfully addressed due to the commitment and positive outlook of politically powerful individuals; the "champions". There are also champions who are not politically powerful but have the right outlook and commitment to work for a cause (engineers, fire fighters, government officers, etc.).

"The lack of adequate prevention measures has been the main cause of casualties and economic losses in past earthquakes. And yet, there remains a fallacy that preparedness costs more than relief."

Conduct earthquake vulnerability assessments and develop damage scenarios: Earthquake damage scenarios describe the socio-economic and physical consequences of a possible earthquake. The damage scenario highlights the measurable socio-economic benefits of a preventive approach and helps disaster managers prepare before a disaster strikes. One effective way of raising awareness is to develop and disseminate an earthquake risk index for various areas.

Promote knowledge sharing and implementation of credible solutions for effective seismic risk mitigation: There is much to gain from reviewing the ever-expanding range of new knowledge being created in the Asia-Pacific region. Knowledge about innovative approaches and strategies for earthquake risk management is a valuable resource.

Aman Mehta is an urban development specialist, currently working as an independent consultant in Asia and Africa. Over the last eight years he has provided expertise on institutional development, indicators development, project design and appraisal and post-disaster damage assessment. This article is extracted from a paper written by the author on Earthquake Vulnerability Risk Mapping for the Asian Disaster Preparedness Center. He can be contacted at aman_mehta@yahoo.com

Pre-Positioned Emergency Rescue Stores (PPERS) – New Earthquake Preparedness Strategy From NSET

Pre-Positioned Emergency Rescue Stores (PPERS) is the latest innovative mechanism to reduce earthquake vulnerability initiated in Nepal by the National Society for Earthquake Technology (NSET).

PPERS is a collection of essential items required by first responders for search and rescue. The items are stored in a room or metallic container in safe areas at different locations in Kathmandu. PPERS provide a reserve of essential equipment needed for immediate response to a major disaster such as an earthquake. The project was designed to enhance local capacity and aims to strengthen cooperation through the spirit of ***neighbor helping neighbor, street helping street and community helping community.***

The seeds of the project were sown in October 2002 when the British Army Civil Affairs (CA) Group conducted an exercise on "Emergency Planning Assessment for a Major Earthquake" in the Kathmandu Valley. One of the recommendations was to enhance community capability by establishing PPERS. A project concept was developed and NSET provided the required technical assistance to the CA group.

For more information on the earthquake mitigation initiatives of NSET contact Mr Amod Mani Dixit Secretary-General/Executive Director at adixit@nset.org.np *or visit* http://www.nset.org.np/

Risk Transfer and Insurance/Reinsurance as a Strategy for Catastrophe Risk Management

During the past 15 years there has been spectacular growth in the use of risk analysis and risk management tools developed by engineers in the financial and insurance sectors. In particular, the insurance, reinsurance, and investment banking sectors have enthusiastically adopted loss estimation tools developed by engineers in developing their business strategies and for managing their financial risks. As a result, the insurance/reinsurance strategy has evolved as a major risk mitigation tool in managing catastrophe risk at an individual, corporate, and governmental level. This is particularly true in developed countries such as the US, Western Europe, and Japan. Unfortunately, it has not received sufficient attention in developing countries where such a strategy is most needed.

Recent earthquakes in India, Iran, China, and Turkey have shown once again that the burden of sharing economic losses by risk transfer to global insurance and reinsurance players is not pursued by developing countries. As an example, the following numbers show catastrophe insurance penetration in developing countries:

• Bulgaria	Under 3%	• China	Under 0.5%	• Iran	Under 0.05%
• India	Under 0.5%	• Philippines	Under 0.3%	• Romania	Under 5%

A lesson yet to be learned in these countries is that insurance can play a major role in helping a nation recover rapidly from a catastrophic event. It is generally accepted that for a region to bounce back to social and economic recovery after a catastrophe, there have to be funds for rebuilding. Insurance can provide those funds.

Catastrophe insurance helps individuals, communities, and nations reduce financial risk by spreading that risk to all those who pay insurance premiums against the specific risk. Further transfer and reduction of risk is achieved through reinsurance companies around the world who insure the insurance companies.

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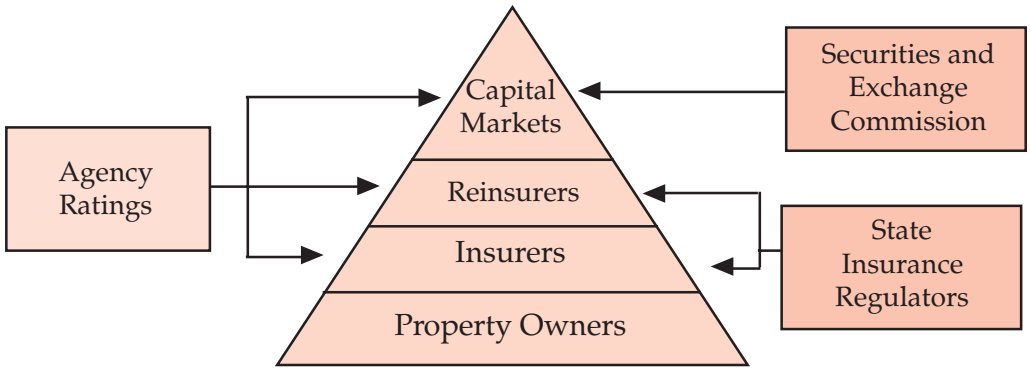
Insight . . .



Key Stakeholders in the Management of Financial Risk
(Source: Private Communication)

Property owners are the ones who can potentially bear losses due to natural catastrophes. To protect themselves, they may transfer some of their risk to insurance companies. When insurance companies accumulate a large amount of risk, they may want to transfer some of their risk to reinsurance companies. The figure shows the main stakeholders in managing financial risk. The capital markets at the top of the risk pyramid provide the capital to the insurance and reinsurance markets through financial instruments such as catastrophe bonds. The insurance rating agencies and the state insurance commissioners generally regulate the functioning of the insurance and the reinsurance companies. The Securities and Exchange Commissions regulate the capital markets. Thus, in the pyramid of stakeholders, the government, private industries, capital markets, and society at large are interested parties.

"Role of Insurance and Reinsurance in Managing Financial Risks Due to Natural Catastrophic Events" by Haresh C. Shah and Weimin Dong. A Chapter in the book to be published in India by Mr. Shirish Patel.

Regional and International Initiatives in Earthquake Vulnerability Reduction

World Seismic Safety Initiative (WSSI) was established with the aim of disseminating information on state-of-the-art earthquake engineering systems, incorporating research findings and lessons, and recommending practices to reduce disaster vulnerability. WSSI involved government and financial institutions in accepting new technology for earthquake resistance through the provision of an organizational framework with sufficient financial resources to undertake projects on information exchange and sharing hazard information. For more information visit www.wssi.org

Earthquake and Mega Cities Initiative (EMI) was set up by a group from WSSI and focuses on addressing specific earthquake risk management issues of concern in mega cities (more than 3 million). EMI brought together institutions, local authorities, the scientific community and others involved in risk management to accelerate the transfer of knowledge and experience. For more information visit www.earthquakesandmegacities.org/

Global Earthquake Safety Initiative (GESI) was developed by Geo Hazards International (GHI) and the United Nations Centre for Regional Development (UNCRD) to build the capacity of city managers to assess risk from natural disasters, predict future risk patterns, and track the long-term success of efforts undertaken. GESI offers a method of quantifying the risk of loss of life in earthquakes in an effort to motivate community leaders to plan development to reduce risk. Geo Hazards International (GHI) and the United Nations Centre for Regional Development (UNCRD) are also working to build a worldwide network of participants and technical advisors who will share mitigation and implementation plans to encourage long-term applications of the project results. For more information visit www.geohaz.org/project/gesi/GesiIntro.htm

RADIUS highlighted the need for people to understand seismic risk and raise public awareness as a first step towards seismic risk reduction. It worked to develop earthquake damage scenarios and action plans in the nine case study cities, 3 of which are in Asia Pacific (Bandung, Tashkent and Zigong). RADIUS developed tools for seismic risk management that can be applied to earthquake prone cities anywhere and promoted information exchange for seismic risk mitigation at city level. The RADIUS initiative has set the standard for earthquake mitigation strategies and measures in the 21st century. The appropriate international platform for disseminating RADIUS case studies and implementing strategies is now the United Nations International Strategy for Disaster Reduction (ISDR). More information is available at http://www.geohaz.org/radius/RADIUSIntro.htm

Asian Urban Disaster Mitigation Program (AUDMP) was established in 1995 by ADPC. AUDMP is a nine-year program designed to respond to the need for safer cities. AUDMP is a nine-year programme designed to respond to the need for safer cities. Working with collaborating institutions in selected partner countries, the program strategy is a three-tiered approach working through National Demonstration Projects, Information and Networking, and Training and Resource Materials and Continuing Education. The National Demonstration project identifies partner cities vulnerable to disasters to provide working examples of urban hazard mitigation. The project includes assessment of a hazard or set of hazards followed by design and implementation of appropriate disaster mitigation measures. Two successful projects are the Kathmandu Valley Earthquake Risk Mitigation Project (KVERMP) in Kathmandu, implemented by the National Society for Earthquake Technology, Nepal, and the Indonesia Urban Disaster Mitigation Project (IUDMP) at the Bandung Centre for Earthquake Engineering Studies (CEES) and Center for Urban and Regional Development Studies (CURDS) within the Institute for Research, Institut Teknologi Bandung.

The Training and Resource Materials and Continuing Education Unit of AUDMP has designed a series of regional-level courses for city managers on Earthquake Vulnerability Reduction for Cities (EVRC). The first regional course, which commenced in May 2002, was an important step by AUDMP to reflect the importance of earthquake disaster mitigation in the region. Four EVRC trainings have been conducted to date. For more information visit www.adpc.net

Community-Based Disaster Management and Forest Fires in East Kalimantan Indonesia

Forest fires have become increasingly common in East Kalimantan, Indonesia. Most fires are caused by human activity, aggravated by the El Niño Southern Oscillation (ENSO). The World Bank estimated that only 1% of forest fires are caused by natural events and the rest by human activities. In 1997, fires caused a total loss of US$9.3 billion for Indonesia.

1997 Forest Fires - Indonesia

The widespread destruction of ecosystems has forced farmers to seek other livelihood strategies outside of agriculture such as illegal logging, small trading and coconut farming. Indicators such as nutritional status of children have given rise to grave concerns for affected communities. Proxy food security indicators such as stunting and wasting of children under five remain high in the most affected areas. (CARE, 1998). The malnutrition figures indicate that there are other issues besides natural resources management, and that a humanitarian strategy focussing on livelihoods is needed.

In response to this situation, CARE developed a household livelihood security (HLS) approach to disaster management. The approach helps establish locally initiated disaster mitigation measures along with environmentally sustainable land use management practices.

CARE DISPRE (DISaster PREparedness) Approach to Forest Fire Management

The project in East Kalimantan has been running for one year and has received positive responses from local communities and other stakeholders. Although the project targets fire-prone forest communities, it does not focus only on forest fires and seeks to reduce community vulnerability to other disasters such as rat infestation of crops and floods.

The program consists of six clusters of activities: participatory action and learning (PLA), training in disaster management, building local emergency response capacity, improving land use mapping, organising stakeholder planning workshops and establishing stakeholder forums on disaster management at the sub-district level.

Some of the activities currently facilitated by the project are:

- **Banana relay-planting with rubber cultivation:** Farmers found that planting banana trees in rubber plantations provided effective firebreaks as well as extra income.
- **Contracts for leasing land:** Land lease contracts facilitate better land use planning between the more established settlers and recent migrants. The project introduced a land leasing concept that allows original land claimants to retain their rights but enables new arrivals to cultivate the land with perennials such as rubber and fruit trees. The trees belong to the claimants but the harvests are shared by both parties.
- **Cultivating productive firebreaks:** Communities have established permanent firebreaks around their villages, rubber plantations and home gardens with crops producing minimum biomass, such as onions.
- **Forest fire brigades:** In some communities, villagers are organising fire brigades based on existing social organisations, like farmer associations. The project facilitates training and helps communities extend the brigades' responsibilities to include early warning.
- **Establishing paddy fields on burned peat swamps:** Drought and subsequent peat fires destroyed many coconut plantations. Growing paddy helps prevent further burning and provides income.

The disaster management training helps participants learn from their experiences. This has proved to be a successful strategy as shown by the activities initiated under the training curriculum, which include helping communities deal with other stakeholders, facilitating local NGOs interested in developing disaster management programs, and promoting conflict resolution.

From the grassroots . . .

Some Conclusions

- Disaster management initiatives need to be integrated into community development activities.
- Approaches to disaster management need to take into account divergent perceptions to land tenure and agricultural practices.
- Private sector companies competing with local communities for natural resources can have significant positive and negative impacts on community livelihoods. CARE tries to involve the private sector in its community disaster management approaches and help villagers communicate their interests to the companies. Joint training sessions allow company management to incorporate community interests along with disaster and conflict management strategies into their development activities.
- Successful disaster management requires building up confidence and overcoming fatalistic attitudes common among people in disaster-prone areas.
- Training in humanitarian standards, such as the SPHERE standards, increase community members' understanding of their entitlements for emergency assistance, especially when they are no longer able to cope on their own.

The authors thank Bud Crandal, Country Director CARE International in Indonesia, Lise Schofield Senior Programme Co-ordinator and Hadi Sutjipto, Emergency Team Leader, for their support and comments on earlier drafts of the full paper.

Johan Kieft is the Regional Programme Manager, Agriculture and Natural Resources (ANR), CARE-East Kalimantan and Aspian Nur is the Project Manager, CARE East Kalimantan. They can be contacted at johanveby@cbn.net.id and peat_kaltim@cbn.net.id

World Conference on Disaster Reduction

The World Conference on Disaster Reduction (WCDR) is scheduled to take place from 18 - 22 January 2005 in Kobe, Hyogo, Japan. This event is considered a milestone in raising the profile of disaster risk reduction in development planning and practice. It will provide ample opportunity to promote strategic and systematic approaches to addressing vulnerabilities and reducing the risk of natural hazards at the national level. Participants hope to build on findings from a review of the Yokohama Strategy and Plan of Actions of 1994.

As a member of the UN Inter-Agency Task Force (UN IATF) and a member of the IATF working group for WCDR, ADPC has been contributing to the program document. In March 2004, during the Regional Consultative Meeting in Dhaka, a "Preparatory Meeting for WCDR" was organized and the national reports were discussed. Subsequently, ADPC has been following up with RCC members (NDMOs from Asian countries) and encouraging submission of national reports. ADPC is co-organizing two parallel sessions under the urban clusters dealing with "Urban Risk Reduction" and "Environmental Degradation and Disaster Risk". Presentations are planned for a number of sessions including Governance: Institutional and Policy Frameworks for Risk Reduction, Disaster Prevention and Adaptation to Climate Change, and Sustainability in CBRDM. ADPC is also publishing three articles in "Know Risk"- the official UN publication for the conference.

In light of the responsibility placed on national governments, ADPC believes it has an important role to play in the follow-on initiatives to WCDR. One such activity would be the implementation of programs and outcome documents. This will be taken up in a special session at the 5th RCC meeting scheduled for 18 - 20 May 2005 in Hanoi, Vietnam. ADPC's RCC project on Mainstreaming DRM into Development (MDRM) is a planned component to support RCC member countries in preparing their national action plans to implement the WCDR Declaration. We are also planning to register the MDRM as a WCDR implementation partnership to be launched at Kobe.

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National catastrophe insurance can help developing countries avoid economic disaster. Most developing countries focus on risk reduction options through engineering strategies. Relatively little attention is given to financial and economic strategies. This needs to change in the light of recent developments in loss-estimation technologies. Until then, post-catastrophe recovery will remain a major challenge to national economies.

Prof Haresh C. Shah is Obayashi Professor of Engineering, (Emeritus), Stanford University, Founder and Senior Advisor, Risk Management Solutions, Inc., and Director, World Seismic Safety Initiative. He can be contacted at haresh.shah@rms.com

How Architectural Features Affect Buildings During Earthquakes

Importance of Architectural Features

The behaviour of a building during earthquakes depends critically on its overall shape, size and geometry, in addition to how the earthquake forces are carried to the ground. Hence, at the planning stage itself, architects and structural engineers must work together to ensure that the unfavourable features are avoided and a good building configuration is chosen. The importance of the configuration of a building was aptly summarised by the late Henry Degenkold, a noted American earthquake engineer who said:

"If we have a poor configuration to start with, all the engineer can do is to provide a band-aid - improve a basically poor solution as best as he can. Conversely, if we start off with a good configuration and reasonable framing system, even a poor engineer cannot harm its ultimate performance too much."

Architectural Features

A desire to create an aesthetic and functionally efficient structure drives architects to conceive wonderful and imaginative structures. Sometimes the shape of the building catches the eye of the visitor, sometimes the structural system appeals, and in other occasions both shape and structural system work together to make the structure a marvel. However, each of these choices of shapes and structure has significant bearing on the performance of the building during strong earthquakes. The wide range of structural damages observed during past earthquakes across the world is very educative in identifying structural configurations that are desirable versus those which must be avoided.

Size of Buildings: In tall buildings with large height-to-base size ratio (Figure 1a), the horizontal movement of the floors during ground shaking is large. In short but very long buildings (Figure 1b), the damaging effects during earthquake shaking are many. And in buildings with large plan areas like warehouses (Figure 1c), the horizontal seismic forces can be excessive to be carried by columns and walls.

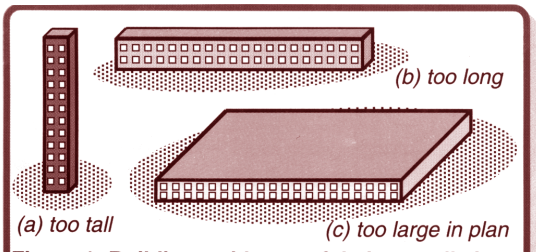

Figure 1: Buildings with one of their overall sizes much larger or much smaller than the other two do not perform well during earthquakes.

Horizontal Layout of Buildings: In general, buildings with simple geometry in plan (Figure 2a) have performed well during strong earthquakes. Buildings with re-entrant corners, like those U, V, H and + shaped in plan (Figure 2b), have sustained significant damage. Many times, the bad effects of these interior corners in the plan of buildings are avoided by making the buildings in two parts. For example, an L-shaped plan can be broken up into two rectangular plan shapes using a separation joint at the junction (Figure 2c). Often, the plan is simple, but the columns/walls are not equally distributed in plan. Buildings with such features tend to twist during earthquake shaking. A discussion of this aspect will be presented in the upcoming IITK-BMTPC Earthquake Tip 7 on How Buildings Twist During Earthquakes.

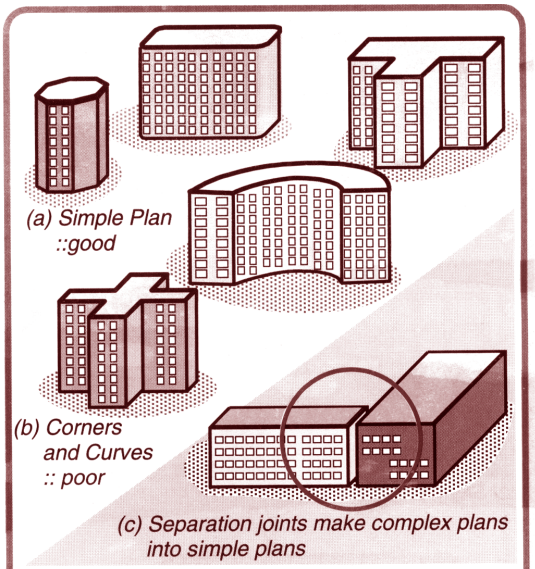

Figure 2: Simple plan shape buildings do well during earthquakes.

Vertical Layout of Buildings: The earthquake forces developed at different floor levels in a building need to be brought down along the height to the ground by the shortest path; any deviation or discontinuity in this load transfer path results in poor performance of the building.

Buildings with vertical setbacks (like the hotel buildings with a few storeys wider than the rest) cause a sudden jump in earthquake forces at the level of discontinuity (Figure 3a). Buildings that have fewer columns or walls in a particular storey or with unusually tall storeys (Figure 3b), tend to damage or collapse which is initiated in

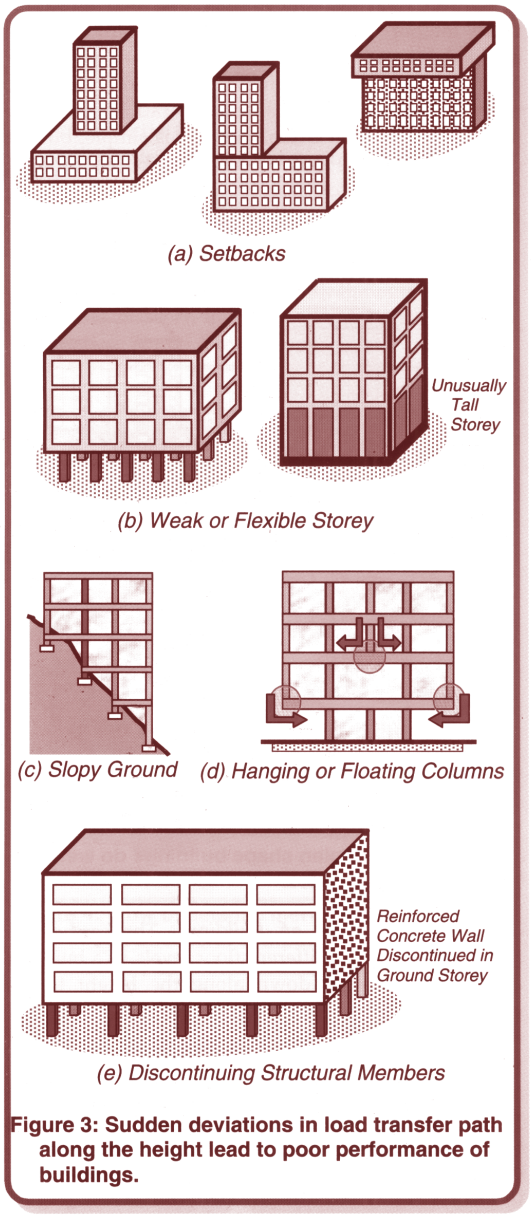

Figure 3: Sudden deviations in load transfer path along the height lead to poor performance of buildings.

that storey. Many buildings with an open ground storey intended for parking collapsed or were severely damaged in Gujarat during the 2001 Bhuj earthquake.

Buildings on slopy ground have unequal height columns along the slope, which causes ill effects like twisting and damage in shorter columns (Figure 3c). Buildings with columns that hang or float on beams at an intermediate storey and do not go all the way to the foundation, have discontinuities in the load transfer path (Figure 3d). Some buildings have reinforced concrete walls to carry the earthquake loads to the foundation. Buildings, in which these walls do not go all the way to the ground but stop at an upper level, are liable to get severely damaged during earthquakes.

Adjacency of Buildings: When two buildings are too close to each other, they may pound on each other during strong shaking. With increase in building height, this collision can be a greater problem. When building heights do not match (Figure 4), the roof of the shorter building may pound at the mid-height of the column of the taller one; this can be very dangerous.

Building Design and Codes

Looking ahead, of course, one will continue to make buildings interesting rather than monotonous. However, this need not be done at the cost of poor behaviour and earthquake safety of buildings. Architectural features that are detrimental to earthquake response of buildings should be avoided. If not, they must be minimised. When irregular features are included in buildings, a considerably higher level of engineering effort is required in the structural design and yet the building may not be as good as one with simple architectural features. Decisions made at the planning stage on building configuration are more important, or are known to have made greater difference, than accurate determination of code specified design forces.

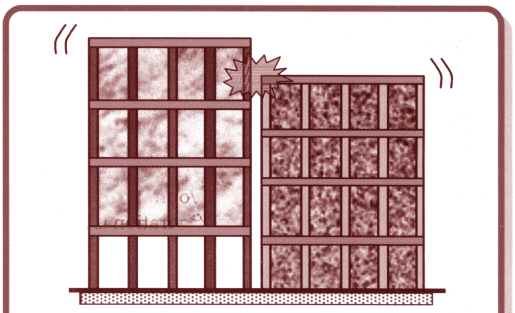

Figure 4: Pounding can occur between adjoining buildings due to horizontal vibrations of the two buildings.

Resource Material

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Authored by: C.V.R.Murty, Indian Institute of Technology Kanpur, Kanpur, India

Sponsored by: Building Materials and Technology Promotion Council, New Delhi, India

 To see previous Earthquake Tips visit: www.nicee.org or www.bmtpc.org

Protecting the Future: Mine Risk Education Program for School Teachers

Mine detectors on display for the participants

Few people realize that Thailand is one of the world's major mine-affected countries. According to a recent Landmine Impact Survey, unexploded ordinance (UXO) and landmines cover 2,560 square kilometers in 27 provinces. The affected provinces are along Thailand's borders with Cambodia, Lao PDR, Malaysia and Myanmar. The Thai-Myanmar border is a critical area as the fighting between government and rebel groups inside Myanmar continues. One hundred and thirty-nine Thai communities along the mountainous border are vulnerable to the dangers of anti-personnel landmines widely used in the fighting. Eight provinces are affected: Chiang Rai, Chiang Mai, Chumpon, Mae Hong Son, Petchaburi, Prachuap Khiri Khan, Tak and Ratchaburi.

In March 2004, the Asian Disaster Preparedness Center with the United Nations Children's Fund (UNICEF) began a one year Mine Risk Education Program (MRE) for school teachers in affected communities. The program aims to raise awareness of the dangers that landmines pose for children. School teachers are the main audience for the training program because they are considered to be "key influencers". A single trained teacher can potentially influence a class of 40 students at a time. The program is expected to:

- Reduce the number of mine and UXO-related accidents among children,
- Increase knowledge and awareness of risks and safety measures, and
- Transfer knowledge from school teachers through the children to other family members.

This program is operating in selected high-risk communities in Mae Hong Son and Chiang Mai Provinces. Program staff began by assessing affected communities in consultation with government units, local authorities, local communities, and relevant agencies to identify areas to implement the program. A training program will be drawn up to respond to the needs assessed and develop materials to support public mine awareness campaigns.

To date, three courses have been conducted for over 282 school teachers from 81 schools. Since 1999, ADPC has been involved in several Mine Risk Awareness projects: the National Seminar on Mine Action; Mine Risk Awareness Education in Sa Kaeo Province; Regional Seminar for Civil Society titled "Antipersonnel Mines – Are they Worth it?"; and a Thailand-wide campaign "Hold Hands Against Landmines".

For more information contact panniya@adpc.net

ADPC Programs and Activities . . .

Launch of Flood Emergency Management Strengthening Project

In September 2004, ADPC launched a new project, "Flood Emergency Management Strengthening (FEMS)". FEMS is Component 4 of the Flood Management and Mitigation Program of the Mekong River Commission (MRC). The project will be implemented in close collaboration with MRC and Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH, with funding from the Federal Republic of Germany. The project is intended to enhance the skills of civil authorities, emergency managers and community residents in matters related to flood preparedness and mitigation and help strengthen emergency management systems to deal more effectively with Mekong floods.

Under the 34-month project (September 2004 to June 2007), the following activities will be undertaken:

- Training in selected provinces and districts of Cambodia and Vietnam (with the close involvement of national disaster management practitioners who will gradually take over the course training),
- Support to provincial and district disaster management authorities for development and implementation of flood preparedness plans in the selected provinces and districts,

ADPC project staff at the project site in Vietnam

- Developing and distributing awareness raising materials,
- Two regional workshops to encourage sharing information on good practices in the Lower Mekong Basin, and
- Support for preparation of practical trans-boundary emergency preparedness tools through province-to-province dialogues and study tours.

All activities will be implemented in close consultation with the National Mekong Committees (NMC), National Disaster Management Offices, Provincial and District Disaster Management Committees (PCDM/DCDM), National Red Cross Societies, government line agencies and partner NGOs working in flood management and mitigation in the MRC member countries of Cambodia, Lao PDR, Thailand and Vietnam.

Successful Completion of Phase I of ECHO-MRC-ADPC Capacity Building Project

The project "Capacity Building for Flood Preparedness Planning in the Lower Mekong Basin Phase I" was implemented through a partnership of MRC, ADPC and ECHO and involved building capacity for flood preparedness, planning and response through the use of flood information products for the countries of the Lower Mekong Basin (Cambodia, Lao PDR, Thailand and Vietnam). The program was financially supported by ECHO under their "3rd Action Plan for Southeast Asia".

The overall objective of this 10-month program (September 2003 to June 2004) was "Enhanced capacity for undertaking flood preparedness planning so that emergency response during floods in the Lower Mekong Basin is carried out in a timely, efficient and coordinated way".

The main accomplishments of the project were:

- An assessment of the strengths and weaknesses of the current use and application of flood forecasting and information products produced by MRC and national line agencies,
- An assessment of the status and gaps in training for flood emergencies in the four target countries,
- A training curriculum based on the findings of the assessment to be delivered in two of the four MRC member countries: Cambodia and Vietnam,
- Two pilot training courses; one in Cambodia's Kampong Cham Province in April 2004, and one in Vietnam's Dong Thap Province in May 2004; with provincial and district disaster management committees as key participants and training courses conducted in Khmer and Vietnamese, and
- A two one-day national seminar in Thailand and Lao PDR.

Both projects were implemented by the Disaster Management Systems Team at the Asian Disaster Preparedness Center. For more details contact: ajrego@adpc.net

In Memoriam

Asian Disaster Preparedness Center deeply regrets the untimely passing away of Prof Dr Serguei Balassanian on 23 November 2004. Founder and Head of the National Survey for Seismic Protection in Armenia, he was serving as a Professor at Yerevan State University and as President of two organizations - Asian Seismological Commission and the Armenian Association of Seismology and Physics of the Earth's Interior (AASPEI). For his personal long-term commitment and dedication to disaster reduction, particularly in seismic hazards, he was awarded the 1998 and the 2002 United Nations Sasakawa Award. ADPC was privileged to work with Prof Balassanian during the last two ASC meetings. ADPC and the disaster management community has lost yet another expert, guide and leading spirit.

The First ADPC – UNESCAP Annual Journalism Award for Outstanding Reporting on Emergencies and Disasters: 2004

Award Winners with Delegates

The First ADPC – UNESCAP Annual Journalism Award for Outstanding Reporting on Emergencies and Disasters was inaugurated during this year's International Day for Natural Disaster Reduction at the United Nations Building on 13 October 2004.

The commemoration began with the opening of the IDNDR Exhibition by H.E. Dr Bhokin Bhalakula, Minister of Interior, Royal Thai Government, who also presided over the forum and the award ceremony. This was followed by a screening of the ISDR film on "Learning to Live with Risk", and the formal opening of the forum by the honorable Dr Kim Hak-Su, Executive Secretary, UNESCAP; and Dr Suvit Yodmani, Executive Director, ADPC. The forum consisted of addresses from Dr Kim Hak-Su, Dr Suvit Yodmani and H.E. Dr Bhokin Bhalakula. Other panel members included Ms Keiko Okeido, Deputy Executive Secretary, UNESCAP; Mr Rae Kwon Chung, Chief of Environmental and Sustainable Development Division, Water Resources Section and Forum moderator; and the Director General, Department of Disaster Prevention and Mitigation, Thailand.

Award plaques and certificates were given to three winners: Ms Onnucha Hutasingha from the Bangkok Post, Jor Sor 100 (Radio Station), and Ms Onuma Kasetpheuphol from Ruam Duay Chuay Gan (Radio Station). Certificates of Recognition were presented to three runners up, Channel 11 (Television Station), Kom Chad Leuk (Newspaper) and Tak Public Relations Office. The three award winners were later invited to speak about their work and experiences in reporting emergencies and disaster events. In the coming years the award is expected to cover the Asian Region.

Disaster Reduction Day Commemorations in Hat Yai, Songkla Province, Thailand

On 12 October 2004, Hat Yai, in Songkla Province in the south of Thailand, observed for the first time the International Day for Disaster Reduction commemorations. Over 500 people led by Hat Yai City Mayor, the Governor of Songkla Province, and ADPC's Executive Director participated in the first such event held outside Bangkok.

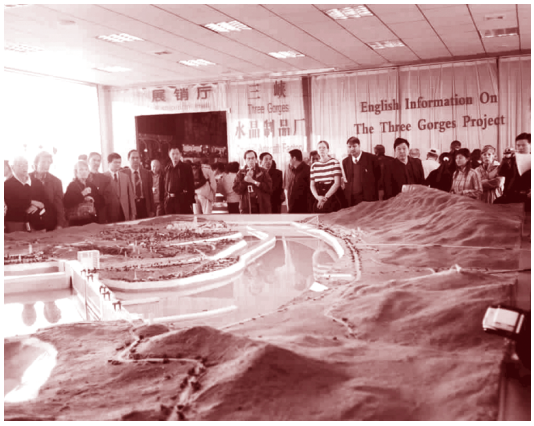
The highlights of the commemoration were the inauguration of the Hat Yai Flood Prevention Center, a press conference, and demonstrations on emergency search and rescue, fire and first aid. Certificates were presented to about 90 leaders and volunteers who took the Flood Preparedness Planning training course organized by Asian Disaster Preparedness Center. Prizes were also awarded to the winners of a painting competition on the theme of "Flood Preparedness". Thirty school children from 16 primary and secondary schools in the province participated. To raise public awareness on disaster risk mitigation, a parade around the city was organized. Participating in the parade were government officials, media, Bangkok-based TV stars, and students and residents of Songkla province.

Hat Yai City Mayor, Governor of Songkhla Province, ADPC, Executive Director along with other dignitories during the city parade

The event was organized under ADPC's Thailand Urban Disaster Mitigation Project (TUDMP). For more details, please contact TUDMP Project Manager at atiwan@adpc.net

Technical Study Tour to China and Thailand for Bangladeshi Officials

A Technical Study Tour on Flood Disaster Risk Management was organized by ADPC for seven senior officials from the Water Development Board, Ministry of Water Resources and Ministry of Planning from 12 - 23 October 2004, with funding from DANIDA.



Officials viewing the Model of the Three Gorges Project

In Bangkok, senior officials visited the Remote Sensing Center of Thailand, the Meteorological Department and the Ministry of Information and Communication Technology. In China, visits were organized to the Research Center on Flood and Drought Disaster Reduction, China's Ministry of Water Resources, International Cooperation of Ministry of Water Resources, The National Headquarters of Flood and Drought Prevention, National Disaster Reduction Center of China of the Ministry of Civil Affairs and Disaster Relief Division of Department of Disaster and Social Relief in Beijing. In Wuhan, the officials visited the Three Gorges Project Model and project site. Meetings with the leaders of the project and the Changjiang (Yangtze) River Scientific Research Institute, Bureau of River Management of Changjiang Water Resources Commission, were very helpful. The study tour was an opportunity for senior officials from Bangladesh to interact with officials, scientists and disaster management professionals in both Thailand and China, and opened up further opportunities for cooperation and joint project development. Prior to the study tour, the officials participated in ADPC's Sixth Flood Disaster Risk Management Course (FDRM-6) in Bangkok.

Asian Program for Regional Capacity Enhancement for Landslide Impact Mitigation (RECLAIM)

In collaboration with the Norwegian Geotechnical Institute (NGI), ADPC started a three year program for Regional Capacity Enhancement for Landslide Impact Mitigation (RECLAIM) in July 2004. With core funding from the Royal Norwegian Ministry of Foreign Affairs, the long term objective of the program is to reduce the landslide disaster vulnerability of human settlements, infrastructure and critical facilities in Bhutan, India, Indonesia, Nepal, Sri Lanka, and Thailand.

Mr Oddvar Kjekstad, Deputy Managing Director, NGI, Norway and Mr U A Seneviratne, Additional Secretary (Housing), Ministry of Housing and Construction Industry, Sri Lanka during the launch of the project.

Asian countries have seen increased incidents of landslides, other mass movements and flash flooding causing considerable economic and human losses. Increased vulnerability is attributed to the growing anthropogenic activity in hilly areas and mountain slopes. However, few efforts have been made by stakeholder institutions to address the social and technical dimensions and to develop cost effective landslide mitigation solutions. The information needs required to implement these initiatives have not yet been fully taken up yet by professionals in developing countries. Because traditional ways of providing training to key stakeholder institutions, landslide mitigation professionals, the service sector and decision-makers is not effective, the project focuses on exchange of knowledge, face-to-face contact, discussion about capacity building, and knowledge management as measures for effective landslide mitigation. The program started with a regional workshop for Landslide Risk Reduction in Asia from 13 - 15 September 2004 in Bangkok.

The program is being implemented under ADPC's Urban Disaster Risk Management (UDRM) Team. For more information on the program contact arambepola@adpc.net and rajesh@adpc.net *or visit the world wide web at* http://www.adpc.net/udrm/reclaim/introduction.html

Government Officials in Iran Trained in Disaster Risk Management

Asian Disaster Preparedness Center and the International Blue Crescent (IBC) jointly organized a training course on disaster risk management for Iranian Government Officials from 4 - 9 October 2004. The training, held in Istanbul, Turkey was developed specifically for senior officials involved in recovery and reconstruction work after the devastating earthquake in Bam. A total of 20 officials participated in the training, including the Deputy Governor of the province.

The main objective was to enhance knowledge and understanding necessary for dealing with disasters and to build capacity in disaster risk management. The participants found the sharing of cases and experiences from different countries greatly enhanced their understanding of the issues involved in disaster risk management. Workshops were also organized to identify problems and issues with the existing disaster risk management system in Iran and to identify strategies for improvement.

IBC is an international NGO and is currently implementing projects on disaster recovery in Bam, Iran. The training was conducted with simultaneous translation from English to Persian.

Post Disaster Assessment Conducted for DART Team in Pakistan

Focus Humanitarian Assistance, an international NGO with headquarters in Washington, has been implementing a Village and Urban Readiness Project in the northern and southern parts of Pakistan. In addition to other activities, three Disaster Assessment and Response Teams (DARTs) have been set up in the districts of Chitral, Gilget and Karachi. These multi-disciplinary teams are comprised of medical doctors, engineers, business people, agriculturists and educators. These professionals work as volunteers for DARTs in addition to their routine jobs in government departments, NGOs, Red Cross chapters, universities and the private sector.

ADPC, at the request of FOCUS Pakistan, organized three Disaster Assessment Training courses in Chitral, Gilget and Karachi for the DART teams. The courses were organized from 17 - 29 October 2004. The purpose of this DART training activity was to build up the professional capacity of learners to respond to disaster emergencies in Pakistan. It also aimed at enabling the DART teams to provide assistance to countries across the region in times of emergency. The training focused on three key areas:

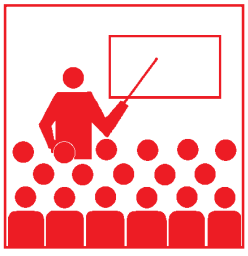
- Team organization and management,
- Post disaster assessment, and
- Disaster preparedness, particularly with reference to post-disaster assessment.

The training was based on a hands-on approach. Simulations and workshops were organized to develop and strengthen the skills of learners and build their problem solving capacity for post-disaster assessment. About 75 DART members were trained.

Thirty First Disaster Management Course held in Thailand

The Disaster Management Course (DMC) was held for the thirty-first time in Bangkok, Thailand from 8 - 26 November 2004. DMC is one of ADPC's flagship courses and aims to provide comprehensive disaster management knowledge and skills to enhance the capabilities of executive managers who have key disaster management responsibilities. Participants learned how to develop effective strategies and systems for disaster prevention, mitigation, response and recovery; how to apply risk management processes to identify, assess and deal with disaster risks; how to use an emergency coordination center to manage disaster events; and how to assess key implementation issues and requirements in disaster management. This year 25 participants from different managerial levels from 15 countries took part in the course.

The above courses were conducted under ADPC's Strategic Disaster Risk Management (SDRM) Team. For more information on the training activities, contact Mr Merrick Chatfield, Team Leader at merrick@adpc.net



First International Training Course on Disasters and Development (D&D-1): Focus on Health

The First International Training Course on Disasters and Development (D&D) with a focus on health was organized in Bangkok from 1 - 12 November 2004. This pilot project was conducted in collaboration with the South East Asia Regional Office of WHO and UNDP's Bureau of Crisis Prevention and Reduction. Twenty-four participants from nine countries included senior and middle level policy managers, health sector decision-makers, advisors and staff of WHO and UNDP at the country and regional offices.

The overall goal of the D&D course is to promote more effective public health risk/emergency management through a comprehensive and integrated approach. The course addresses the challenges of dealing with disasters and development from the perspective of identifying interrelations with health issues. The concept of 'risk management' is at the core of the D&D course.

The above course was conducted under ADPC's Public Health in Emergencies (PHE) Team. For more information on the training activities, contact Dr Marcel Dubouloz, Team Leader at marcel@adpc.net

Land Use Planning for Disaster Risk Management

Two courses on Land Use Planning for Disaster Risk Management were held from 8 -12 November in Lao PDR and 13 - 17 December 2004 in Sri Lanka under ADPC's Urban Disaster Risk Management (UDRM) Team. The course was designed to merge experiences from two professional fields of practice: Land Use Planning and Risk Management, aiming at developing a framework to integrate a set of generic and hazard-specific risk management principles into the planning and management of land use.

The course was aimed at land use planners, urban planners, municipal engineers and other professionals, administrative and elected officers to urban, municipal, and local governments. The aim was to facilitate discussion about the ways cities and local governments can minimize risks in developing long-range land use policy strategies, and in carrying out day-to-day development review responsibilities. The course was delivered jointly by the Asian Disaster Preparedness Center and the GIS Application Center (GAC), Asian Institute of Technology, Thailand.

Fourth Regional Training Course on Earthquake Vulnerability Reduction for Cities (EVRC-4) 29 November to 4 December Jakarta, Indonesia

The fourth Earthquake Vulnerability Reduction Course was held in Jakarta, Indonesia from 29 November to 4 December 2004. The course was targeted at those concerned with the reduction of vulnerability to earthquakes in urban areas. It aimed at enlightening the participants about the causes and effects of earthquakes as well as the possible strategies and approaches to reducing the damage and loss of life caused by these destructive events.

The course was organized by the ADPC in collaboration with the World Seismic Safety Initiative (WSSI), Earthquake and Megacities Initiative (EMI), and Yayasan Inovasi Pemerintahan Daerah/ Center for Local Government Innovation (YIPD/CLGI) Jakarta. It builds on past and ongoing endeavors such as EMI, UN, IDNDR, ISDR initiative for Risk Assessment Tools for Diagnosis, Urban Areas against Seismic Disasters (RADIUS), and Global Earthquake Safety Initiative (GESI) launched by UNCRD and Geo-Hazard International. The previous courses were conducted in Nepal and Bangladesh. The course offers an overview of urbanization, urban hazards, vulnerabilities, risk and disaster management, earthquake hazard and risk assessment methods, and plan implementation for vulnerability reduction.

The above course was conducted under ADPC's Urban Disaster Risk Management (UDRM) Team. For more information on training activities under the UDRM Team, contact Mr N.M.S.I Arambepola, Team Leader at arambepola@adpc.net

Workshop Links Science and Technology with Disaster Management Organizations

ADPC organized a Disaster Management Workshop from 6 - 12 December 2004 at the Wadia Institute of Himalayan Geology, Dehradun, India. The focus of the workshop was on improving disaster management for earthquakes and landslides by enhancing links between science and technology sectors and disaster management organizations. Participants included members of the scientific community, officials from various Ministries, non-governmental organizations and the disaster management sector.

For more information, contact Mr. Steve Banks steve@adpc.net

Asian Disaster Preparedness Center Training Calendar 2005

Regular Courses

- Skills for Effective Trainers (SET-1), Bangkok, 18 - 29 April
- Community-based Psychological Support (CBPS-1), Bangkok, 16 - 18 May
- Psychological Support Practitioners Workshop (CBPS-1A), Bangkok, 16 - 20 May (in combination with the CBPS-1 Course)
- Exercise Management (EXM-1), Bangkok, 16 - 20 May
- Disaster Mental Health (DMH-1), Bangkok, 6 - 10 June
- Community-based Disaster Risk Management (CBDRM-13), Bangkok, 4 - 15 July
- Crisis and Consequence Management (CCM-1), Bangkok, 8 - 11 Aug
- Chemical, Biological, and Radionuclear Disasters (CBRN-1), Bangkok, 22 - 26 Aug
- Flood Disaster Risk Management (FDRM-7), Bangkok, 12 - 23 September
- Disaster Management Course (DMC-32), Bangkok, 7 - 25 November

For more information contact Strategic Disaster Risk Management Team Leader at: merrick@adpc.net

Program Based Courses:

Urban Disaster Risk Management

- Land-use Planning in Disaster Management, Bangkok, March
- Capacity Building in Asia using Information Technology Applications in Disaster Management Course in collaboration with ITC- Netherlands, Vietnam, May
- Urban Flood Management Training (UFM-6), Hat Yai, Thailand, September
- Earthquake Vulnerability Reduction Course (EVRC-5), Bangladesh, August

For more information contact Urban Disaster Risk Management Team Leader at: arambepola@adpc.net

Public Health Courses

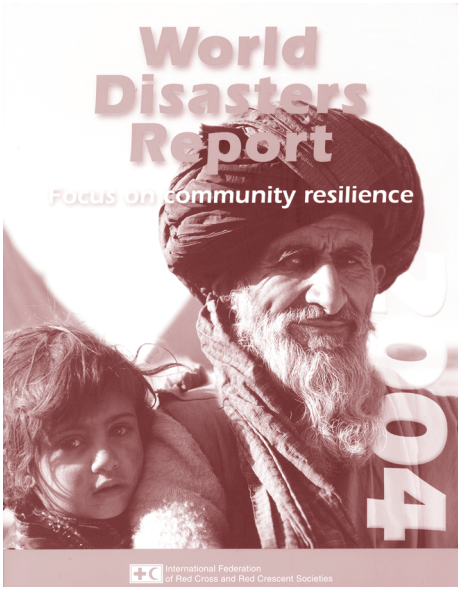
- Management of Public Health Risk (MPHR-2) in collaboration with WHO-EMRO, Tunisia, March (by invitation only)
- Collapse Structure Search and Rescue (CSSR), China, March (For Chinese Residents)
- Disasters and Development with a Focus on Health (D&D) WHO-EHA, Pakistan, March (For Pakistani Residents)
- Public Health and Emergency Management in Asia and the Pacific (PHEMAP-5), Bangkok, July (open to all)
- Hospital Emergency Preparedness and Response (HEPR-3), Bangkok, September (open to all)
- Disasters and Development in collaboration with WHO and UNDP, Bangkok, November (by invitation only)

For more information on health related courses contact Public Health in Emergencies Team Leader at: marcel@adpc.net

The dates are subject to change. To receive information on ADPC training and other activities, send a blank e-mail to adpc-announce-subscribe@yahoogroups.com

Recent Publications

These publications may be of interest to our readers. ADPC Information and Knowledge Management Unit can offer assistance in locating them.



World Disaster Report 2004: Focus on Community Resilience. International Federation of Red Cross and Red Crescent Societies, 2004, ISBN 9-1913-9108-5, 240 pages, US$25.00/£17.95. Order from Kumarian Press Inc. 1294 Blue Hills Ave., Bloomfield CT 06002, USA. Fax: +18602432867, E-mail: kpbooks@kpbooks.com, Website: www.ifrc.org

The World Disaster Report 2004 puts the focus on community resilience and argues that a developmental approach to creating disaster resilience is needed. This puts communities in charge of defining their needs and crafting the right solutions. Topics covered in the report are: community resilience and what it means in practice, heat waves, rural communities in India and how they cope against all odds, Bam earthquakes, harnessing local capacities in the Philippines, HIV/AIDS - eroding communities across Africa, and urban risk and resilience – lessons from South Asia. The report brings together the latest trends, facts and analyses of contemporary crises – natural or human-made, quick-onset or chronic.

The State of the World's Cities 2004/2005. UN-Habitat, Nairobi, September 2004, ISBN 9-2113-1705-3, Earthscan Publications Ltd., London and Sterling. The report can be ordered on the Earthscan website: www.earthscan.co.uk/asp/bookdetails.asp?key=5001

The State of the World's Cities 2004/2005 charts the progress and the challenges we face in this rapidly urbanizing world. With contributions from some of the world's leading urban scholars, writers and experts, this report carries extensive examples, illustrations and facts that are of use to experts and non-experts alike. First published in 2001, this flagship report by UN-HABITAT is now published every two years and represents a further milestone in the efforts of the United Nations to gather, promote, and disseminate information for policy makers and the public at large.

Small Change: About the Art of Practice and the Limits of Planning in Cities. Nabeel Hamdi. September 2004, ISBN 1-8440-7005-0, 184 pages (paperback), £14.99. Order from Earthscan, 1294 Blue Hills Ave., Bloomfield CT 06002, USA. Fax: +18602432867, Website: www.earthscan.co.uk/

Small Change brings over three decades of experience and knowledge to bear on the question, "What is practice?" This book is an argument for the wisdom of the street, the ingenuity of improvisers, and the long-term, large-scale effectiveness of immediate, small-scale actions. Using an easy-to-read narrative style, and drawing on examples from the North and South, the author sheds light on this question and the issues that stem from it – issues relating to political context, the lessons of the 'informal city', and the pursuit of learning that challenges convention. The result is a comprehensive yet imaginative guide to the forms of knowledge, competencies and ways of thinking that are fundamental to skilful practice in urban development.

Cities and Climate Change. Harriet Bulkeley, Michele Betsill, December 2004, ISBN 0-4153-5916-3, 256 pages (paperback), Routledge Publishing, US$22.50. Order online from http://www.routledge.com/

Climate change is one of the most challenging issues of our time. As key sites in the production and management of emissions of greenhouse gases, cities will be crucial for the implementation of international agreements and national policies on climate change. This book provides a critical analysis of the role of cities in addressing climate change and the prospects for urban sustainability. Cities and Climate Change is the first in-depth analysis of the role of cities in addressing climate change. The book argues that key challenges concerning the resources and powers of local government, as well as conflicts between local goals for economic development and climate change mitigation, have restricted the level of local action on climate change. These findings have significant implications for the prospects of mitigating climate change and achieving urban sustainability. It provides a valuable interdisciplinary analysis of these issues, and will appeal to students and researchers interested in sustainability at local and global scales.

Bookmarks . . .

Seismic Risk Management for Countries of the Asia Pacific Region: Proceedings of the 3rd WSSI International Workshop. Edited by Kimiro Meguro, Dushmanta Dutta and Tsuneo Katayama, 2004, Serial Number 5, ISBN 4-9902-0670-3, 317 pages, International Center for Urban Safety Engineering (ICUSE). Copies can be requested from ICUSE, Institute of Industrial Science, University of Tokyo, 4-6-1 Komaba, Meguro-ku, Tokyo 153-8505, Japan. E-mail: icus@iis.u-tokyo.ac.jp

This volume contains the proceedings of the Third International Workshop of the World Seismic Safety Initiatives (WSSI) on Seismic Risk Management for Countries of the Asia Pacific Region, held in Bangkok from 7 - 8 December 2003. It contains reports on earthquake risk mitigation efforts, strategies, responses and assessment measures initiated from 12 countries, international organizations and international cooperation with JICA. It also elaborates on the role of WSSI as a catalyst in initiating several activities for earthquake disaster reduction in different countries.

Proceedings of the Symposium on Seismology, Earthquake Hazard Assessment and Risk Management held in conjunction with the Fourth General Assembly of the Asian Seismological Commission, 24 - 26 November 2002, Katmandu. Edited by Amod Mani Dixit, October 2004, 242 pages, National Society for Earthquake Technology, Nepal. Copies can be requested from nset@nset.org.np

This volume contains the proceedings of the Symposium on Seismology, Earthquake Hazard Assessment and Risk Management held in November 2002. It contains 35 technical papers on experiences in earthquake hazard assessment and risk management in Asia. The papers cover a range of topics including earthquake vulnerability reduction, earthquake prediction research, seismic hazard estimation, community-based experiences, and early warning systems.

Selected Internet Resources

World Wide Web Sites . . .

http://www.asc-india.org/
Amateur Seismic Centre. An informative site started by a young undergraduate as a personal project who is now working as an Earthquake Hazard Researcher with the United Nations Development Programme. The site is a collection of information on recent quakes in South Asia. Topics include: how we feel a quake, intensity maps, seismicity, tsunamis, fault plane sols, photographs and more.

http://www-megacities.physik.uni-karlsruhe.de/www-mega/downloads/
A comprehensive summary of the **Earthquake Master Plan for Istanbul** prepared by Mustafa Erdik from Bogazici University. The development of the master plan was initiated by a request from the Metropolitan Municipality (IMM) to a consortium involving four leading Turkish universities: Bogazici, Istanbul Technical, Middle East Technical and Yildiz Technical.

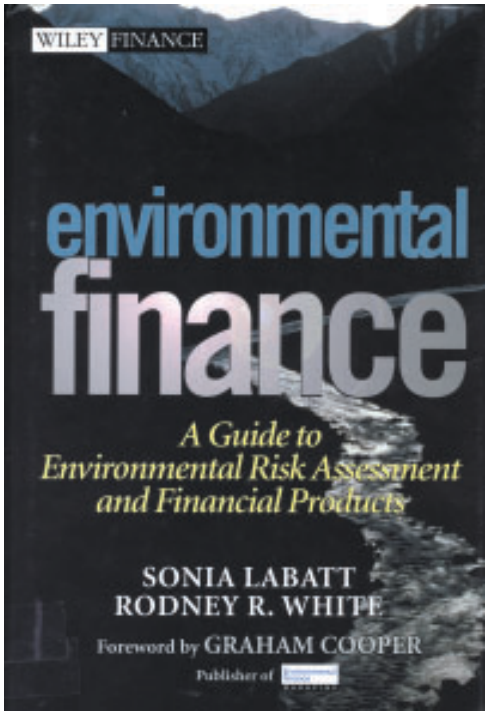
http://www.fema.gov/hazards/earthquakes/nehrp/
FEMA set up this site on their **National Earthquake Hazards Reduction Program (NEHRP)**. It includes resources, best practices, news releases, and more. NEHRP is a Federal Government program to reduce the risks to life and property from earthquakes. NEHRP agencies comprise; FEMA, the lead agency; the National Institute of Standards and Technology (NIST); the National Science Foundation (NSF); and the United States Geological Survey (USGS).

http://www.lastfirst.net/index.php
Last-First Networks Tools for Change. This non-profit resource centre is dedicated to advancing effective community renewal and grassroots development. It achieves this by raising awareness of proven practical approaches to working with poor and marginal groups of any society, and by resourcing practitioners and organizations who work with these groups. The website has a searchable catalogue of over 11,000 resources on every aspect of community renewal, social change, peace-building, aid and development practice, micro-enterprise, advocacy and much more. An online shopping feature allows users to order resources online.

http://www.disastereducation.org/guide.html
Talking About Disaster: Guide for Standard Messages (2004). This site contains awareness and action messages intended to help people reduce risk of injury or loss in the event of natural or human-caused disasters. The earthquake section covers the need to talk about earthquake disasters and awareness messages, actions to be taken at all phases of a disaster event, Dos & Don'ts and Facts & Fictions about earthquakes. Produced by the National Disaster Education Coalition (NDEC), Washington DC, the Expert Disaster Preparedness Guide may be downloaded for free.

http://www.undp.org.in/dmweb/UEVRP/
UNDP's Urban Earthquake Vulnerability Reduction Project's (UEVRP) site has a collection of information resources on project activities, maps, photographs, publications, documents and manuals, training courses and workshops, human-interest stories, best practices and lessons learned.

Environmental Finance: A Guide to Environmental Risk Assessment and Financial Products. *Sonia Labatt and Rodney R. White, 2002, ISBN 0-4711-2362-5, Wiley Finance Series, John Wiley and Sons, New Jersey, USD 79.95. To order write to* info@environmental-finance.com



Corporations are beginning to recognize that sound environmental management is profitable, and are quickly changing the way they manage their businesses. This has brought about a complete paradigm shift in the way businesses are being run.

Environmental Finance is perhaps the first book to explore this emerging and important field of study. It explains market-based instruments designed to deliver environmental quality and transfer environmental risk. According to the authors, "Environmental Finance is different from environmental economics and ecological economics, which focus on social values. Environmental finance tackles environmental problems from the perspective of the corporation. Corporate interests are framed by the personal ambitions, expectations and values of the managers and owners of firms, and by the regulatory systems through which society obliges them to respond to environmental challenges."

The fact is, corporations may be better positioned than governments to respond to environmental challenges, make appropriate plans and take actions to protect their own interests.

The book begins with an overview of what and how the field emerged and how environmental finance can help us face the challenges ahead. It discusses the tools for developing environmental finance, and further explores the changes in the financial services sector as a result of globalization and deregulation. The following chapters provides in-depth descriptions of the three key areas of finance; banking, insurance and investment, that have been impacted by environmental issues and how these sectors have risen to the challenges by coming up with products such as green mortgages, insurance for cost-cap overruns for cleaning up polluted sites, catastrophe bonds for earthquakes and weather risks, and markets for greenhouse gas reduction credits.

Chapter seven is of special interest to disaster risk managers. It deals with the financial implications of climate change. Climate change is what drove environmental issues to the fore. The chapter leads us through the main turning points in mainstreaming environmental issues. It also explains the effects of extreme climate events on the economy and human response to them, such as taxes on energy and carbon emissions, and trading credits for carbon dioxide emissions reduction.

Chapter eight covers environmental reporting and verification, and the evolution of corporate environmental reporting in annual and financial reports. The last two chapters discuss strategies for managing environmental change and the way forward.

Insightful and lucidly written, the book is replete with real-life examples. It is an equally valuable guide to newcomers to field and to professionals interested in learning about issues that are intrinsically woven into our daily lives. I highly recommend this book to all disaster risk management professionals.

Ambika Varma is Information and Knowledge Manager at ADPC and can be contacted at ambika@adpc.net

Book review . . .

Editor's corner . . .

Dear Readers,

We are pleased to bring you this issue of the Asian Disaster Management News on Earthquake Vulnerability Reduction. Our sincere appreciation is extended to Mr Arambepola, Team Leader of ADPC's Urban Disaster Risk Management Team, for his valuable advice on the overall theme of this issue.

Many countries in the Asian region are in active seismic zones and are therefore faced with the constant threat of earthquake hazards. The most recent earthquakes in China and Iran are proof of the magnitude of the problem and how much more needs to be done in the field of earthquake mitigation. Urban areas, especially historic urban areas and informal settlements, are particularly vulnerable as is described in the theme paper, which explores a number of initiatives adopted for earthquake vulnerability reduction.

ADPC has identified a need to develop capital investment programs to make built environments more secure and disaster resilient. To accomplish this it will be necessary to create a stream of viable retrofit and new construction-programs and projects to apply improved technologies, new cons truction techniques, to train labor and provide effective technical assistance.

Mr Haresh Shah's article explains how risk transfer and insurance can be employed as a strategy for catastrophe risk management, especially in this region, and the article from NSET in Nepal describes new initiatives in earthquake preparedness in the capital.

The Grassroots section looks at CARE's success in implementing a community-based forest fire mitigation project in East Kalimantan. Also in this issue you will find our regular features on recent publications, websites, book reviews and updates on ADPC's programs and activities.

As always, we look forward to your suggestions and comments.

Wishing you all a very prosperous and safe 2005!

Earl Kessler
ekessler@adpc.net

Theme for Forthcoming Issue of the Asian Disaster Management News
Climate Risk Management

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EUROPEAN COMMISSION

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